REMARKS

In view of the following discussion, the Applicants submit that none of the claims now pending in the application are indefinite, anticipated or unpatentable under the provisions of 35 U.S.C. §§112, 102 or 103, respectively. Thus, the Applicants believe that all of these claims are now in allowable form.

I. IN THE SPECIFICATION

The Examiner requested a new title and a new abstract which are more aptly descriptive of the invention claimed. In response, the Applicants have amended the title and abstract.

II. REJECTION OF CLAIMS 1-44 35 U.S.C. §112

The Examiner has rejected claims 1-44 in the Office Action under 35 U.S.C. §112 for being indefinite. In response, the Applicants have amended claims 1-38, which is fully supported by the language in the specification. The Applicants respectfully submit that the Applicants' specification _clearly_ states the result achieved by the Applicants' invention; reducing sampling volumes and reducing sampling error in data networks. (See Applicants' specification, para. [09], [24], [25], [29] and [31].) Moreover, these results can be achieved by utilizing a probabilistic parameter as recited in the Applicants' independent claims. (See Applicants' specification, at least para. [41].) Therefore, the Applicants submit that support for each claim has been identified and respectfully request that the rejection of claims 1-44 under 35 U.S.C. §112 be withdrawn.

III. REJECTION OF CLAIMS 1-38 UNDER 35 U.S.C. §102

The Examiner has rejected claims 1-38 in the Office Action under 35 U.S.C. § 102 as being anticipated by Torres (US Patent 6,725,263, issued April 20, 2004, hereinafter referred to as "Torres.") The Applicants respectfully traverse the rejection.

Torres teaches systems and methods for analyzing network traffic. The method includes forecasting a total amount of traffic transmitted to and from each of the plurality

of nodes based on observed traffic statistics and an estimated growth. (See Torres, Abstract.)

The Examiner's attention is directed to the fact that Torres fails to teach or suggest the novel concept of a method or system for managing a data network, the method comprising the step of <u>determining whether to sample the object in accordance with a probabilistic parameter</u>, as positively claimed by Applicants' independent claims 1, 37 and 38. Specifically, Applicants' independent claims 1, 37 and 38 positively recite:

1. A method for managing a data network containing a data interface and a processor connected to the data interface in order to receive objects, the objects containing traffic information, the method comprising:

    (a)   receiving an object, wherein the object is characterized by at least one attribute and wherein the object comprises at least one data element;

    (b)   <u>determining whether to sample the object in accordance with a probabilistic parameter</u>;

    (c)   sampling the object in response to step (b); and

    (d)   processing the sample in response to step (c). (Emphasis added.)

37. A method for charging a customer for usage of a data network containing a data interface and a processor connected to the data interface in order to receive objects, the objects containing traffic information, the method comprising:

    (a)   adjusting a probabilistic parameter in accordance with a charging accuracy;

    (b)   receiving an object, wherein the object is characterized by a size and a customer;

    (c)   <u>determining whether to sample the object in accordance with the probabilistic parameter</u>, wherein the probabilistic parameter approximately optimizes a cost function and wherein the cost function relates the probabilistic parameter to a sampling accuracy and a sampling volume;

    (d)   sampling the object in response to step (c);

    (e)   normalizing the sample in response to step (d);

    (f)   determining the usage for the customer in accordance with step (e);

    (g)   adjusting the usage in accordance with the charging accuracy; and

    (h)   determining a charge to the customer in response to step (g). (Emphasis added.)

38. A method for managing a data network in accordance with a data volume, wherein the data network contains a data interface and a processor connected to the data interface in order to receive objects, the method comprising:

    (a)   adjusting a probabilistic parameter for a sampling window in accordance with a targeted sampling volume;

    (b)   receiving an object, wherein the object is characterized by a size;

Page 13

(c)   determining whether to sample the object in accordance with the probabilistic parameter, wherein the probabilistic parameter approximately optimizes a cost function, wherein the cost function relates the probabilistic parameter to a sampling accuracy and a sampling volume;

(d)   sampling the object in response to step (c);

(e)   normalizing the sample in response to step (d);

(f)   determining an estimated traffic volume in accordance with step (e); and

(g)   utilizing the estimated traffic volume to manage the data network. (Emphasis added.)

The Applicants' invention teaches a method and system for managing a data network, where the method comprising the step of determining whether to sample the object in accordance with a probabilistic parameter. Applicants' invention is directed to the use of sampling to reduce the amount of data that must be processed. For example, a service provider that is tasked with charging its customers based on network usage may need to accurately measure the actual usage, e.g., how must traffic is being passed on the service provider's network. However, to collect such data without the use of sampling will be extremely impractical. Thus, in one embodiment, Applicants' invention employs size-dependent sampling. However, sampling also leads to problems in terms of accuracy, e.g., determining whether to sample or not to sample is a difficult issue. Thus, the Applicants' invention uses a probabilistic parameter that determines the probability that a given flow will be sampled. (See e.g., Applicants specification, paragraph [42]) For example, in one embodiment, the value of z can be set to achieve the desired accuracy or traffic volume. (See Id.)

In contrast, Torres fails to anticipate the Applicants' invention. Torres only teaches forecasting a total amount of traffic transmitted to and from each of the plurality of nodes based on observed traffic statistics and an estimated growth. (See Torres, Abstract.) Therefore, Torres does not teach a method and system for managing a data network, the method comprising the step of determining whether to sample the object in accordance with a probabilistic parameter. As such, the Applicants respectfully submit that Torres clearly does not anticipate Applicants' independent claims 1, 37 and 38.

Furthermore, dependent claims 2-36 depend, either directly or indirectly, from claim 1 and recite additional limitations. As such, and for the exact same reason set

forth above, the Applicants submit that claims 2-36 are also patentable and not anticipated by Torres. As such, the Applicants respectfully request the rejection be withdrawn.

IV. REJECTION OF CLAIMS 1-36 AND 39-44 UNDER 35 U.S.C. § 103

The Examiner has rejected claims 1-36 and 39-44 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Spencer (U.S. Patent 5,197,002, issued March 23, 1993, hereinafter referred to as "Spencer.") Applicants respectfully traverse the rejection.

Spencer teaches methods and apparatus for dynamic hashing. Spencer teaches a system for processing billing records in a data packet transmission network by optimizing the search algorithm for accessing customer records. (See Spencer, Abstract.) Spencer utilizes a hashing technique. (See *Id.*)

The Examiner's attention is directed to the fact that Spencer fails to teach, show or suggest a method and system for managing a data network, the method comprising the step of <u>determining whether to sample the object in accordance with a probabilistic parameter,</u> as positively claimed by Applicants' independent claims 1 and 39. (See claim 1 *supra.*) Applicants' independent claim 39 recites:

> 39. A computer-readable medium containing instructions for controlling a computer system to manage a data network, by:
> receiving an object, wherein the object is characterized by at least one attribute and wherein the object comprises at least one data element;
> <u>determining whether to sample the object in accordance with a probabilistic parameter;</u>
> sampling the object in response to determining whether to sample the object; and
> processing the sample in response to sampling the object. (Emphasis added.)

The Applicants' invention teaches a method and system for managing a data network, the method comprising the step of <u>determining whether to sample the object in accordance with a probabilistic parameter.</u> The Applicants' invention uses a <u>probabilistic parameter</u> that determines the probability that a given flow will be sampled.

Page 15

(See Applicants specification, para. [42].) The value of z can be set to achieve the desired accuracy or traffic volume. (See *Id.*)

In contrast, Spencer fails to teach, show or suggest the Applicants' invention. Spencer only teaches a system for processing billing records in a data packet transmission network by optimizing the search algorithm for accessing customer records. (See Spencer, Abstract.) The Examiner admits that Spencer fails to teach a probabilistic parameter. (See Office Action, pg. 4, II. 6-7.) However, the Examiner asserts that "[i]t would have been obvious to a person of ordinary skill in the art to use an algorithm for processing customers' billing statement dependent on the business decision of he [sic] service provider." (See *Id.* at 7-9.) The Applicants' respectfully submit that Examiner has misinterpreted the Applicants' invention. A probabilistic parameter, as defined by the Applicants' invention, is a threshold that is used to define a sampling probability and not an algorithm. (See Applicants' specification, para. [41].) Therefore, Spencer clearly does not teach a method and system for managing a data network, the method comprising the step of determining whether to sample the object in accordance with a probabilistic parameter. As such, Spencer does not teach or suggest Applicants' invention as recited in independent claims 1 and 39.

Dependent claims 2-36 and 40-44 depend, either directly or indirectly, from independent claims 1 and 39, respectively, and recite additional limitations. As such, and for the exact same reason set forth above, the Applicants submit that claims 2-36 and 40-44 are also not made obvious by the teachings of Spencer. As such, the Applicants respectfully request the rejection be withdrawn.

Conclusion

Thus, the Applicants submit that claims 1-44 now fully satisfy the requirements of 35 U.S.C. §§112, 102 and 103. Consequently, the Applicants believe that these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues in any of the claims now pending in the application, it is requested that the Examiner telephone

<u>Mr. Kin-Wah Tong, Esq.</u> at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

_____11/1/05_____

Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Shrewsbury, New Jersey 07702

Kin-Wah Tong, Attorney
Reg. No. 39,400
(732) 530-9404

Page 17